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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,736	02/18/2004	Chen Lung Kuo	08954.0014	2073

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/779,736	KUO, CHEN LUNG	
	Examiner	Art Unit	
	W. Patty Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) 27-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-26 and 33-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jan. 27, 2006 has been entered.

Election/Restrictions

Applicant's election without traverse of Species II in the reply filed on Apr. 27, 2006 is acknowledged.

Response to Amendment

Applicant's Amendment filed Jan. 27, 2006 has been entered. Claims 33-40 are newly added per the Amendment file. Therefore, claims 21-40 are pending in the current application, however, claims 27-32 are withdrawn from consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al. (US 6671025).

With respect to claim 21 (Amended): Ikeda et al. disclose in Figure 12 a liquid crystal display panel, comprising:

- a first substrate (element 51);

- a second substrate (element 31) having a plurality of first areas (region corresponding to elements 33a, 33b) and a plurality of second areas (region corresponding to element 32), wherein the first areas and the second areas on a side of the second substrate facing the first substrate, and a surface of the second substrate is higher in the first area than in the second areas (as shown in the figure);

- a liquid crystal layer (element 49) sandwiched between the first substrate and the second substrate;

- a plurality of first protrusions (element 55 formed over element 52, the black matrix region) disposed on the first substrate (element 50) and substantially contacting the first areas of the second substrate for maintaining a first cell gap between the first and second substrates (as shown in the figure); and

- a plurality of second protrusions (element 55 formed over element 53, the color filter region) disposed on the first substrate corresponding to the second areas of the second substrate, tops of the second protrusions separated from the second areas of the substrate by a predetermined distance in such a manner that the second protrusions contact the second areas of

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the second substrate when the liquid crystal display panel is subjected to an external force to maintain a second cell gap between the first and second substrates, the second cell gap being smaller than the first cell gap (as shown in the figure, wherein when under external impact, the second protrusions will contact the second substrate and maintaining a smaller cell gap).

As to claim 22: Ikeda et al. further disclose in Figure 12 that the first substrate is a color filter substrate and the second substrate is a thin film transistor substrate, wherein the liquid crystal display panel further comprises thin film transistor (TFT) devices formed in the first areas of the second substrate (Column 14, lines 13-17), and wherein the first protrusions (element 55 formed over element 52, the black matrix region) contact the TFT devices formed in the first areas of the second substrate.

As to claim 23: Ikeda et al. further disclose in Column 14 lines 27-29 that the first protrusions and the second protrusions have the same height.

As to claim 24: Ikeda et al. further disclose in Column 13 lines 27-29 and Column 14 lines 1-67 that the predetermined distance between the second protrusions and the second areas of the second substrate is from about 1 μ m to about 2 μ m (the cell gap is kept at 4 μ m by the spacer, and the thickness of the color filter layer plus the thickness of the second protrusions add up to be about 3 μ m produces a distance in the second area of about 1 μ m, which falls within the range of 1-2 μ m).

As to claim 25: Ikeda et al. further disclose that the first and second protrusions are made of the same material (Column 14, lines 27-29; wherein both are made of insulating resin, formed of the same layer).

As to claim 26: Ikeda et al. further disclose in Figure 12 that the display panel further comprising a plurality of third protrusions (element 35) disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 33, 35 and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (US 2002/0075443).

With respect to claim 33 (New): Shimizu et al. disclose in Figure 6 a liquid crystal display panel, comprising:

- a first substrate (element 100B) having a plurality of first areas (region where element 1b is formed) and a plurality of second areas (region where element 1c is formed), wherein a surface of the first substrate has the same height in the first areas and in the second areas;

- a second substrate (element 100A) having a plurality of first areas (region where element 104 is formed) and a plurality of second areas (region wherein element 104 is not formed), wherein the first areas and the second areas are on a side of the second substrate facing the first substrate, a surface of the second substrate is higher in the first areas than in the second areas, and the second areas of the second substrate correspond to the second areas of the first substrate;

- a liquid crystal layer (element 9) sandwiched between the first substrate and the second substrate;

- a plurality of first protrusions (element 1b) disposed on the first areas of the first substrate and substantially contacting the first areas of the second substrate; and

a plurality of second protrusions (element 1c) disposed on the second areas of the first substrate, tops of the second protrusions being separated from the second areas of the second substrate by a predetermined distance (as shown in the figure).

As to claim 35 (New): Shimizu et al. further disclose in Paragraph 0085 that the first protrusions and the second protrusions have the same height.

As to claim 37 (New): Shimizu et al. further disclose in Paragraph 0091 that the first protrusions and the second protrusions are made of the same material.

As to claim 38 (New): Shimizu et al. further disclose in Paragraph 0085 that the first protrusions maintain a first cell gap between the first and second substrates.

As to claim 39 (New): Shimizu et al. further disclose in Paragraph 0085 that the second protrusions contact the second areas of the second substrate when the liquid crystal display is subjected to an external force to maintain a second cell gap between the first and second substrates, the second cell gap being smaller than the first cell gap.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443) in view of Miyachi et al. (US 6211937).

With respect to claim 34 (New): Shimizu et al. disclose all of the limitations set forth in claim 33 and further disclose in Paragraph 0085 that the first substrate is a color filter substrate and the second substrate is a thin film transistor substrate; the liquid crystal display panel further comprising thin film transistor (TFT) devices on the second substrate.

Shimizu et al. fail to specifically disclose that the TFT devices are formed in the first areas of the second substrate wherein the first protrusions contact the TFT devices.

However, Miyachi et al. disclose in Figure 5 a liquid crystal display device comprising of TFT devices (element 1) wherein protrusions (element 5) are formed in locations contacting the TFT devices (Column 7, lines 55-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al. wherein the first protrusions are formed in contact with the TFT devices as taught by Miyachi et al., since Miyachi et al. teach that by forming the protrusions on the TFT devices minimizes the effect of lowering the aperture ratio thus preventing a degradation of the display quality (Column 8, lines 33-39).

As to claim 36 (New): Miyachi et al. further disclose in Column 8 line 3 that the TFT devices have a thickness of 1.6 μ m, therefore, when the first protrusions are formed contacting

the TFT devices, the distance between the second protrusions with respect to the second substrate will then be $1.6\mu\text{m}$, which is in the range of $1.0\mu\text{m}$ to $2.0\mu\text{m}$.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443) in view of Sawasaki et al. (US 2001/0026347).

Shimizu et al. disclose all of the limitations set forth in claim 33, but fail to disclose that a plurality of third protrusions being disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer.

However, Sawasaki et al. disclose in Figure 48 a liquid crystal display device comprising a plurality of third protrusions (element 246a) in addition to a plurality of first protrusions and a plurality of second protrusions, disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al. wherein a plurality of third protrusions being disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer as taught by Sawasaki et al., since Sawasaki et al. teach that by forming a plurality of third protrusions helps in providing a multi-domain display device, thereby, obtaining good display quality (Paragraphs 0016-0017).

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Patty Chen
Examiner
Art Unit 2871

WPC
6/29/06


ANDREW SCHECHTER
PRIMARY EXAMINER